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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,594	06/09/2006	Jens Beier	WUE-52	1983
7590 Thomas J Burger Wood Herron & Evans 2700 Carew Tower 441 Vine Street Cincinnati, OH 45202-2917			EXAMINER OREILLY, PATRICK F	
			ART UNIT 3749	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/582,594

**Applicant(s)**

BEIER ET AL.

**Examiner**

Patrick F. O'Reilly III

**Art Unit**

3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) 9, 10 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8, 12 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is in response to applicant's amendments received on June 24, 2009 and November 26, 2008.

#### ***Information Disclosure Statement***

2. The information disclosure statement filed June 9, 2006 fails to comply with 37 CFR 1.98(a)(3) because it does not include an English translation or a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information of the following document, which is not in the English language: Lufthansa Report 0476 (published in German). It has been placed in the application file, but the information referred to in the Lufthansa Report has not been considered.

#### ***Drawings***

3. The amendment to the drawings filed November 26, 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: (a) the inclusion of a *single, centralized mixing zone* (26), (b) the inclusion of a *single, centralized ambient air supply connection* to the mixing zone (26), and (c) a control device (28) connected to the mixing zone (26). None of these components were included in the original figure of this application. Moreover, the functional language used to describe the mixing of the air streams and the control of that mixing, which was included in the original specification, is insufficient to provide support for the level of detail that is now introduced in Figures 1 and 1A (see e.g., page 5 of the original

specification, lines 10-20, and page 6, lines 6-11). For example, the functional language used to describe the mixing of the air streams in the original specification does not provide support for the inclusion of a single, centralized mixing zone (26). In fact, the original specification does not describe any structural components associated with the mixing of the air streams at all.

Applicant is required to cancel the new matter in the reply to this Office Action.

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The amendment filed November 26, 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not

supported by the original disclosure is as follows: all references to the mixing zone (26), which were made in conjunction with the addition of Figures 1 and 1A (see e.g., paragraphs [0020], [0022], and [0023] of the substitute specification). As described above with respect to the drawings, the functional language used to describe the mixing of the air streams in the original specification does not provide support for the inclusion of a single, centralized mixing zone (26).

Applicant is required to cancel the new matter in the reply to this Office Action.

*Claim Rejections - 35 USC § 112*

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, new claims 12 and 13 recite “a mixing zone (26)”, which is operatively connected to a downstream end of the “air conditioning unit (14)”, “second hot air supply lines (18)”, an “ambient air inlet”, an aircraft cabin, and a “control device (28)”. The functional language used to describe the mixing of the air streams and the control of that mixing, which was included in the original specification, is insufficient to provide support for the structural components (e.g., the mixing zone 26) and the level of detail that is now recited in claims 12 and 13. For example, the functional language used to describe the mixing of the air streams in the original specification does not provide support for the inclusion of a single, centralized mixing

zone (26). In fact, the original specification does not describe any structural components associated with the mixing of the air streams at all. Therefore, with respect to the mixing of the air streams, the original specification only provides support for functionally claiming these aspects of the invention. In order to overcome these new matter issues, the Examiner recommends amending claims 12 and 13 so that the mixing of the air streams are described in a functional manner that is consistent with the description provided in the original specification.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. As to claims 12 and 13, the use of the term “mixing zone (26)” renders these claims indefinite. As described above in the 35 U.S.C. 112, first paragraph rejections, the original disclosure of this application did not provide adequate support for any such “mixing zone (26)”. Rather, the mixing of the various air streams was described using functional language. It is unclear whether the schematically represented “mixing zone (26)” is intended to be a “centralized chamber” wherein all of the air mixing occurs, or alternatively, is intended to symbolically represent a plurality of various mixing devices dispersed in various locations throughout the aircraft fuselage. For the purpose of an examination on the merits, the examiner has considered the recited “mixing zone (26)” to symbolically represent a plurality of various mixing devices dispersed in various locations throughout the aircraft fuselage.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 2-8, 12, and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al. (US 6,189,324) in view of Darges et al. (US 3,825,212), and further in view of Hayes et al. (US 4,149,389). These three references, when considered together, teach all of the elements recited in **claims 2-8, 12, and 13** of this application.

13. In particular, claim 12 of this application is obvious when Williams et al. is viewed in light of Darges et al., and further viewed in light of Hayes et al. Williams et al. discloses the invention substantially as claimed, including: a first hot air supply line (connected to inlet 52) leading to an air conditioning unit (air cycle cooling circuit 60 – Fig. 1) for supplying hot air thereto; a flow control valve (electrically operated selector valve 50) disposed in the first hot air supply line (connected to inlet 52) upstream from the air conditioning unit (60 – Fig. 1); a second hot air supply line (branch line downstream from outlet 58 and connected to cabin 12 via temperature control valve 130) branching off from the first hot air supply line (connected to inlet 52) between the flow control valve (50) and the air conditioning unit (60), bypassing the air conditioning unit (60) and connecting the first hot air supply line (connected to inlet 52) to a mixing zone (e.g., mixer 120), the mixing zone (120) also connected to a downstream end of the air conditioning unit (60) so as to enable mixing of the hot air supplied via the first and second air supply lines with cool air flowing out of the air conditioning unit (60), the mixing zone (120)

in fluid communication with the aircraft cabin (12); a control device (e.g., control computer 40, which regulates temperature control valve 130) operatively connected to the mixing zone (120) and adapted to adjust the mixing of the hot air received from the first and second hot air supply lines and the cool air flowing out of the air conditioning unit (60) so as to achieve a controlled cabin air temperature, during a normal mode of operation; a third hot air supply line (full bleed air line 56) branching off from the first hot air supply line (connected to inlet 52) at the flow control valve (50) and connecting to the second hot air supply line (downstream of mechanical check valve 136); a first close off mechanism (e.g., mechanical check valve 136) disposed in the second hot air supply line upstream from the third hot air supply line (56), the first close off mechanism (136) operable to, when in a closed position, prevent a flow from the second hot air supply line back to the first hot air supply line (see col. 7, ln 23-28); and a second close off mechanism (in the first outlet port 54 of valve 50) connected to the third hot air supply line (56) upstream from the second hot air supply line and operable to close off the third hot air supply line (56) during the normal mode of operation and to open the third hot air supply line (56) if the air conditioning unit (60) fails. Refer to Williams et al., Figure 1; column 3, lines 21-30 and 46-67; column 4, lines 1-10; and column 7, lines 1-28.

However, claim 12 of this application further discloses that the third hot air supply line branches off upstream from the flow control valve in the first hot air supply line and connects to the second hot air supply line upstream from the mixing zone; the second close off mechanism is disposed in the third hot air supply line; and an ambient air inlet is connected to the mixing zone and adapted to feed cold ambient air to the mixing zone for mixing with the hot air supplied via the third hot air supply line, wherein when the air conditioning unit fails, the control device also



adapted to adjust the mixing of the hot air supplied to the mixing zone via the third hot air supply line and the cold ambient air supplied by the ambient air inlet when the air conditioning unit fails, so as to achieve the controlled air cabin temperature, whereby the control device controls the cabin air temperature during the normal mode of operation and when the air conditioning unit fails. Williams et al. does not contain these additional limitations.

Darges et al., although, teaches an aircraft heating and ventilating system having an ambient air inlet (24), a hot bleed air duct (32), a mixing zone (unit 30), and a central temperature control system (as shown in Fig. 4), wherein the ambient air inlet (24) is connected to the mixing zone (30) and is adapted to feed cold ambient air to the mixing zone (30) for mixing with the hot air supplied via the hot air bleed duct (32), and wherein the control system is adapted to adjust the mixing of the hot air supplied to the mixing zone (30) by controlling bleed air valve (72) for the purpose of automatically controlling the temperature of the air that is being supplied to the aircraft passenger compartment. See Darges et al., Figure 4; column 2, lines 65-68; column 3, lines 1-14; column 5, lines 2-68; and column 6, lines 1-30. Therefore, when Williams et al. is viewed in light of Darges et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft cabin heating system of Williams et al. by adding a mixing unit (30) with an ambient air intake means (24) to the third hot air supply line (56) so that the hot bleed air in supply line (56) is able to be mixed with cold ambient air before delivering the air to the aircraft cabin and by regulating the temperature of the mixed air using a control device, as taught by Darges et al., in order to automatically control the temperature of the air that is being supplied to the aircraft passenger compartment during the failure mode, as well as during the normal mode. It further would have

been obvious to one having ordinary skill in the art at the time the invention was made to utilize a central control system (device), such as the one taught by Darges et al., during both the normal and failure modes of operation so as to obviate the need for two separate control devices.

Williams et al., as modified by Darges et al, does not explicitly disclose that the third hot air supply line branches off upstream from the flow control valve in the first hot air supply line and connects to the second hot air supply line upstream from the mixing zone; and that the second close off mechanism is disposed in the third hot air supply line. However, the functionality of the system disclosed in Williams et al. system is very similar to that of the present invention, namely controlling the temperature in the aircraft cabin (12) in case of a failure of the air conditioning unit (60). See Williams et al., column 3, lines 63-67 and column 4, lines 1-10. Both the device from Williams et al., as well as that of the present invention, achieve that by shutting down the flow from the first hot air supply line to the air conditioning unit and by directly providing hot air from the first hot air supply line via the third and second hot air supply lines to the cabin (12). Refer to Williams et al., Figure 1. In Williams et al., the third hot air supply line (56) branches off from the first hot air supply line at flow control valve (50), not upstream from flow control valve (50). See Williams et al., Figure 1. Thus, instead of closing a first two-way valve (i.e., the flow control valve 16 in the present invention), and opening a second two-way valve (i.e., the second close off mechanism 22 in the present invention), the device disclosed in Williams et al. uses a single, three-way selector valve (50) to redirect the hot air flow to the cabin (12) in case of failure. Refer to Williams et al., column 3, lines 63-67 and column 4, lines 1-10.

However, merely substituting two independent, two-way valves for a single three-way selector valve that performs the same function would not make the claimed invention patentably distinct from the modified system of Williams et al. because it is a well known principle of patent law that the mere substitution of one art-recognized equivalent for another art-recognized equivalent, both of which are known to be used for the same purpose, is *prima facie* obvious. See MPEP § 2144.06(II). In this case, the prior art, namely Hayes et al., teaches that it is known in the heating, ventilating, and air conditioning (HVAC) art to substitute two independent, two-way valves for a single three-way selector valve, wherein both valve arrangements are capable of being used for the same purpose. Refer to Hayes et al., column 4, lines 13-16. Therefore, when Williams et al., is viewed in light of Darges et al., and further viewed in light of Hayes et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft heating system of Williams et al. in view of Darges et al. by substituting two independent, two-way valves for the single three-way selector valve, as taught by Hayes et al., because both valve arrangements are capable of redirecting hot air flow to the cabin (12) upon the failure of an air conditioning unit. In addition, the connection of the third hot air supply line to the second hot air supply line upstream from the first mixing zone (120) is an obvious matter of design choice that does not affect the overall functionality of the system.

14. In regard to claim 2, Williams et al. further discloses that, when the air conditioning unit (air cycle cooling circuit 60 – Fig. 1) is functioning, the first close off mechanism (mechanical check valve 136) assumes its open position and the second close off mechanism (in the first outlet port 54 of valve 50) assumes its closed position. See Williams et al., Figure 1; column 3,

lines 58-63; and column 7, lines 23-28. Therefore, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in this claim obvious.

15. In regard to claim 3, Williams et al. further discloses that, in the event of a failure of the air conditioning unit (air cycle cooling circuit 60 – Fig. 1), the flow control valve (second outlet port 58 of valve 50) and the first close off mechanism (mechanical check valve 136) assume their closed positions and the second close off mechanism (in the first outlet port 54 of valve 50) assumes its open position. Refer to Williams et al., Figure 1; column 3, lines 58-67; column 4, lines 1-10; and column 7, lines 23-28. Consequently, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in claim 3 obvious.

16. Moreover, claim 4 of this application also is obvious when Williams et al. is viewed in light of Darges et al., and further viewed in light of Hayes et al. The combined teachings of these three reference render obvious all of the limitations recited in claim 4, except for providing multiple arrangements of the components recited in claim 12 (e.g., providing a plurality of first, second, and third hot air supply lines, a plurality of air conditioning units, and a plurality of flow control valves, first close off mechanisms, and second close off mechanisms). However, the Court of Customs and Patent Appeals has held that the “mere duplication of parts has no patentable significance unless a new and unexpected result is produced”. See MPEP § 2144.04(VI)(B) (quoting *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). In this application, merely providing multiple arrangements of the components recited in claim 12 simply facilitates the control of multiple air conditioning zones in the aircraft passenger compartment. One of ordinary skill in the art would expect that a single air conditioning zone may not be able to adequately control the interior climate in large aircraft and that such a

limitation could be overcome simply by the addition of multiple air conditioning zones.

Consequently, because the ability to provide multiple air conditioning zones is neither a new or unexpected result of utilizing multiple arrangements of the components recited in claim 12, the plurality of components recited in claim 4 of this application has no patentable significance and this claim is properly rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al. in view of Darges et al. and Hayes et al.

17. In regard to claim 5, Williams et al. further discloses that the first close off mechanism (136) is a non-return valve (a mechanical check valve). See Williams et al., Figure 1 and column 7, lines 23-28. Thus, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in claim 5 obvious.

18. In regard to claim 6, Williams et al. further discloses that the second close off mechanism (in the first outlet port 54 of valve 50) is a stop valve (during the normal operation of the air conditioning system 60, flow is prevented, i.e., stopped, through the first outlet port 54 of valve 50). Refer to Williams et al., Figure 1 and column 3, lines 58-63. Therefore, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in this claim obvious.

19. In regard to claim 7, Williams et al. further discloses that the stop valve (in the first outlet port 54 of valve 50) is automatically actuated (selector valve 50 is electrically operated). See Williams et al., column 3, lines 58-63. Consequently, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in claim 7 obvious.

20. In regard to claim 8, Williams et al. further discloses that the stop valve (in the first outlet port 54 of valve 50) is connected to a control device, in particular to the control device of the

associated air conditioning unit (the selector valve 50 is positioned responsive to an electrical output from a control computer 40, which is operatively connected to the air cycle cooling circuit 60). Refer to Williams et al., Figure 1 and column 3, lines 63-67. Thus, Williams et al. in view of Darges et al., and further in view of Hayes et al. also renders the limitations set forth in claim 8 obvious.

21. Moreover, claim 13 of this application is obvious when Williams et al. is viewed in light of Darges et al., and further viewed in light of Hayes et al. Williams et al. discloses the invention substantially as claimed, including: guiding a controlled flow of hot air from a hot air source via a first hot air supply line (connected to inlet 52) and then through an air conditioning unit (air cycle cooling circuit 60 – Fig. 1); directing a portion of the controlled flow of hot air from the hot air source via a second hot air supply line (branch line downstream from outlet 58 and connected to cabin 12 via temperature control valve 130), the second hot air supply line branching from the first hot air supply line (connected to inlet 52) downstream of a flow control valve (electrically operated selector valve 50) but upstream from the air conditioning unit (60), said portion being directed to a mixing zone (e.g., mixer 120) for mixing hot air supplied via the first and second air supply lines with cool air flowing out of a downstream end of the air conditioning unit (60); adjusting, via a control device (e.g., control computer 40, which regulates temperature control valve 130), the mixing of the hot air supplied via the first and second hot air supply lines and the cool air flowing out of the air conditioning unit (60), thereby to achieve the required cabin air temperature during a normal mode of operation; in the event of a failure of the air conditioning unit (60), supplying hot air to the aircraft cabin (12) via a third hot air supply line (full bleed air line 56) that branches off the first hot air supply line (connected to inlet 52) at

the flow control valve (50), and connects to the second hot air supply line (downstream of mechanical check valve 136) thereby to bypass the air conditioning unit (60) so that the hot air from the hot air source received via the third hot air supply line (56) and the second hot air supply line flows to the aircraft cabin (12); whereby the control device (e.g., control computer 40, which regulates temperature control valve 130) controls the cabin air temperature during the normal mode of operation. Refer to Williams et al., Figure 1; column 3, lines 21-30 and 46-67; column 4, lines 1-10; and column 7, lines 1-28.

However, claim 13 of this application further discloses that, in the event of a failure of the air conditioning unit, supplying hot air to the mixing zone via the third hot air supply line, which branches off the first hot air supply line upstream of the flow control valve and connects to the second hot air supply line upstream of the mixing zone, thereby to bypass the flow control valve as well as the air conditioning unit; supplying cold ambient air to the mixing zone in the event of a failure of the air conditioning unit; and adjusting, via the control device, the mixing of the hot air supplied via the third hot air supply line with the cold ambient air, whereby the control device controls the cabin air temperature when the air conditioning unit fails, as well as during the normal mode of operation. Williams et al. does not contain these additional limitations.

Darges et al., although, teaches an aircraft heating and ventilating system/method having an ambient air inlet (24), a hot bleed air duct (32), a mixing zone (unit 30), and a central temperature control system (as shown in Fig. 4), wherein the ambient air inlet (24) is connected to the mixing zone (30) and is adapted to feed cold ambient air to the mixing zone (30) for mixing with the hot air supplied via the hot air bleed duct (32), and wherein the control system is

adapted to adjust the mixing of the hot air supplied to the mixing zone (30) by controlling bleed air valve (72) for the purpose of automatically controlling the temperature of the air that is being supplied to the aircraft passenger compartment. See Darges et al., Figure 4; column 2, lines 65-68; column 3, lines 1-14; column 5, lines 2-68; and column 6, lines 1-30. Therefore, when Williams et al. is viewed in light of Darges et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft cabin heating system/method of Williams et al. by adding a mixing unit (30) with an ambient air intake means (24) to the third hot air supply line (56) so that the hot bleed air in supply line (56) is able to be mixed with cold ambient air before delivering the air to the aircraft cabin and by regulating the temperature of the mixed air using a control device, as taught by Darges et al., in order to automatically control the temperature of the air that is being supplied to the aircraft passenger compartment during the failure mode, as well as during the normal mode. It further would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a central control system (device), such as the one taught by Darges et al., during both the normal and failure modes of operation so as to obviate the need for two separate control devices.

Williams et al., as modified by Darges et al, does not explicitly disclose that the third hot air supply line branches off upstream from the flow control valve in the first hot air supply line and connects to the second hot air supply line upstream from the mixing zone, thereby to bypass the flow control valve as well as the air conditioning unit. However, the functionality of the system disclosed in Williams et al. system is very similar to that of the present invention, namely controlling the temperature in the aircraft cabin (12) in case of a failure of the air conditioning unit (60). See Williams et al., column 3, lines 63-67 and column 4, lines 1-10. Both the device



from Williams et al., as well as that of the present invention, achieve that by shutting down the flow from the first hot air supply line to the air conditioning unit and by directly providing hot air from the first hot air supply line via the third and second hot air supply lines to the cabin (12). Refer to Williams et al., Figure 1. In Williams et al., the third hot air supply line (56) branches off from the first hot air supply line at flow control valve (50), not upstream from flow control valve (50). See Williams et al., Figure 1. Thus, instead of closing a first two-way valve (i.e., the flow control valve 16 in the present invention), and opening a second two-way valve (i.e., the second close off mechanism 22 in the present invention), the device disclosed in Williams et al. uses a single, three-way selector valve (50) to redirect the hot air flow to the cabin (12) in case of failure. Refer to Williams et al., column 3, lines 63-67 and column 4, lines 1-10.

However, merely substituting two independent, two-way valves for a single three-way selector valve that performs the same function would not make the claimed invention patentably distinct from the modified system/method of Williams et al. because it is a well known principle of patent law that the mere substitution of one art-recognized equivalent for another art-recognized equivalent, both of which are known to be used for the same purpose, is *prima facie* obvious. See MPEP § 2144.06(II). In this case, the prior art, namely Hayes et al., teaches that it is known in the heating, ventilating, and air conditioning (HVAC) art to substitute two independent, two-way valves for a single three-way selector valve, wherein both valve arrangements are capable of being used for the same purpose. Refer to Hayes et al., column 4, lines 13-16. Therefore, when Williams et al., is viewed in light of Darges et al., and further viewed in light of Hayes et al., it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft heating system/method of Williams et

al. in view of Darges et al. by substituting two independent, two-way valves for the single three-way selector valve, as taught by Hayes et al., because both valve arrangements are capable of redirecting hot air flow to the cabin (12) upon the failure of an air conditioning unit. In addition, the connection of the third hot air supply line to the second hot air supply line upstream from the first mixing zone (120) is an obvious matter of design choice that does not affect the overall functionality of the system.

### ***Response to Arguments***

22. Applicants' arguments with respect to pending claims 2-8, 12, and 13 have been considered but are moot in view of the new ground(s) of rejection.

If the Applicants wish to request an interview, the Examiner would be happy to discuss the outstanding issues in this application. In particular, the Examiner would like to discuss amendments to the independent claims that could potentially overcome the new matter rejections by reciting the mixing of the air streams using functional limitations that are clearly supported by the original specification.

On page 26 of the Remarks dated November 26, 2008, the Applicants noted that US Patent No. 6,012,515 to Stubbendorff et al. was not listed on the form PTO-892 as a cited reference. The Examiner did not list this reference on the previous PTO-892 form because Stubbendorff et al. was already made of record in this case by virtue of its inclusion on the Information Disclosure Statement (IDS) filed on February 15, 2008.

### ***Conclusion***

23. See attached form PTO-892 for additional pertinent prior art, which was not directly relied upon in this action.

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick F. O'Reilly III whose telephone number is (571) 272-3424. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. O'Reilly III/  
Examiner, Art Unit 3749

/Steven B. McAllister/  
Supervisory Patent Examiner, Art Unit 3749